



15th ICCRTS
**“The Evolution of C2: Where Have We Been? Where
Are We Going?”**
Paper # I-124

***Accelerated Decision Making, Data Integration and Software
Development using a Service Oriented Architecture
Foundation (SOAF)***

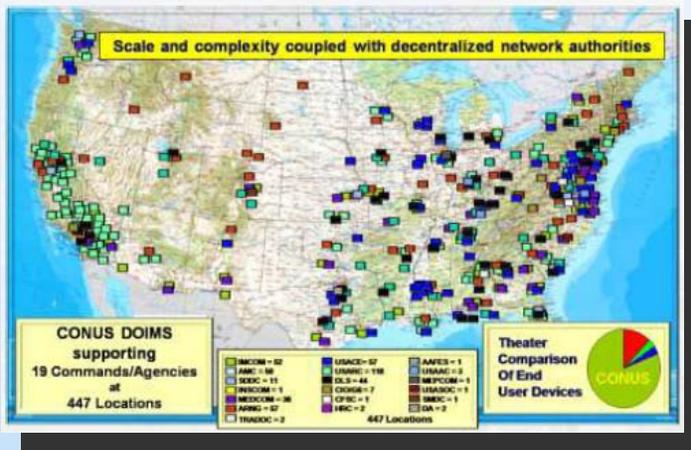
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The Army IT Enterprise is a complex mix of commercial and tactical systems dispersed and often moving around the world.

- Distributed Geographically



- Siloed Tactical Systems



- Non-Standard Solutions



Additionally, these systems must operate and be secured on a scale most organizations would never even consider:

- Active Duty : 621,000*
- Reserve Duty : 549,000*
- Tactical Systems : 37**

- Business Systems : 237**
- Support Systems : 215**
- Intel Systems : 13**

*Source: www.siadapp.dmdc.osd.mil/personnel

**Source: www.whitehouse.gov/omb/budget/supplemental

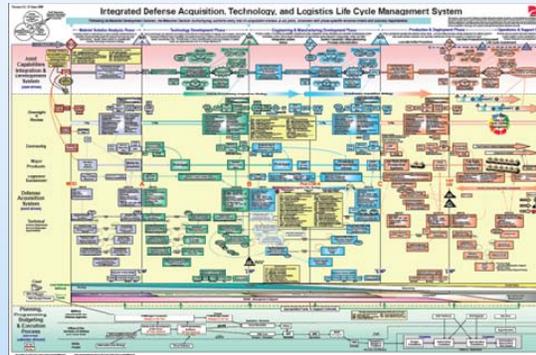
Enterprise level integration projects face a number of challenges which hamper system integration results

IT Challenges

- Siloed Systems

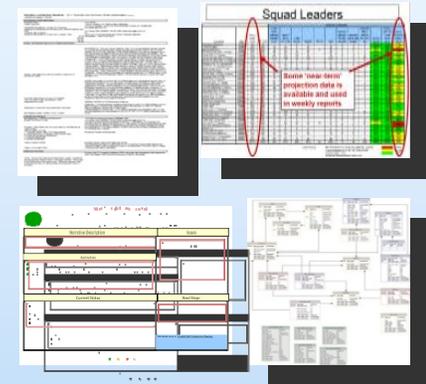


- Lengthy Acquisition Process



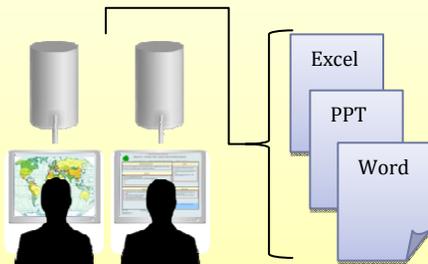
Source: https://acc.dau.mil/IFC/download_pdf.htm

- Unrelated Data Reports

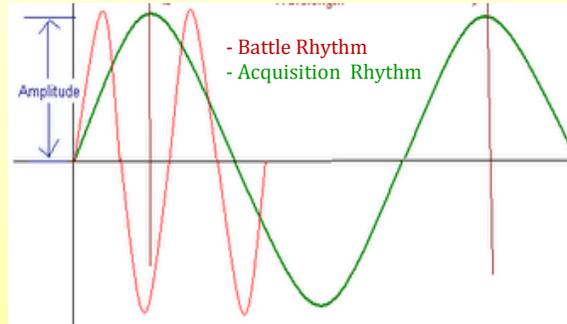


Warfighter Consequences

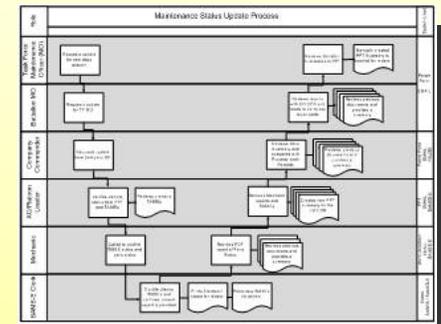
- Siloed Systems - Force Manual Integrations



- Lengthy IT Dev Process – Limits rapid operational adaption



- Un-Related Data Reports – Force manual analysis



SOA Foundation solution was created in order to accelerate SOA adoption

The SOA Foundation (SOAF) was created to address the following goals:

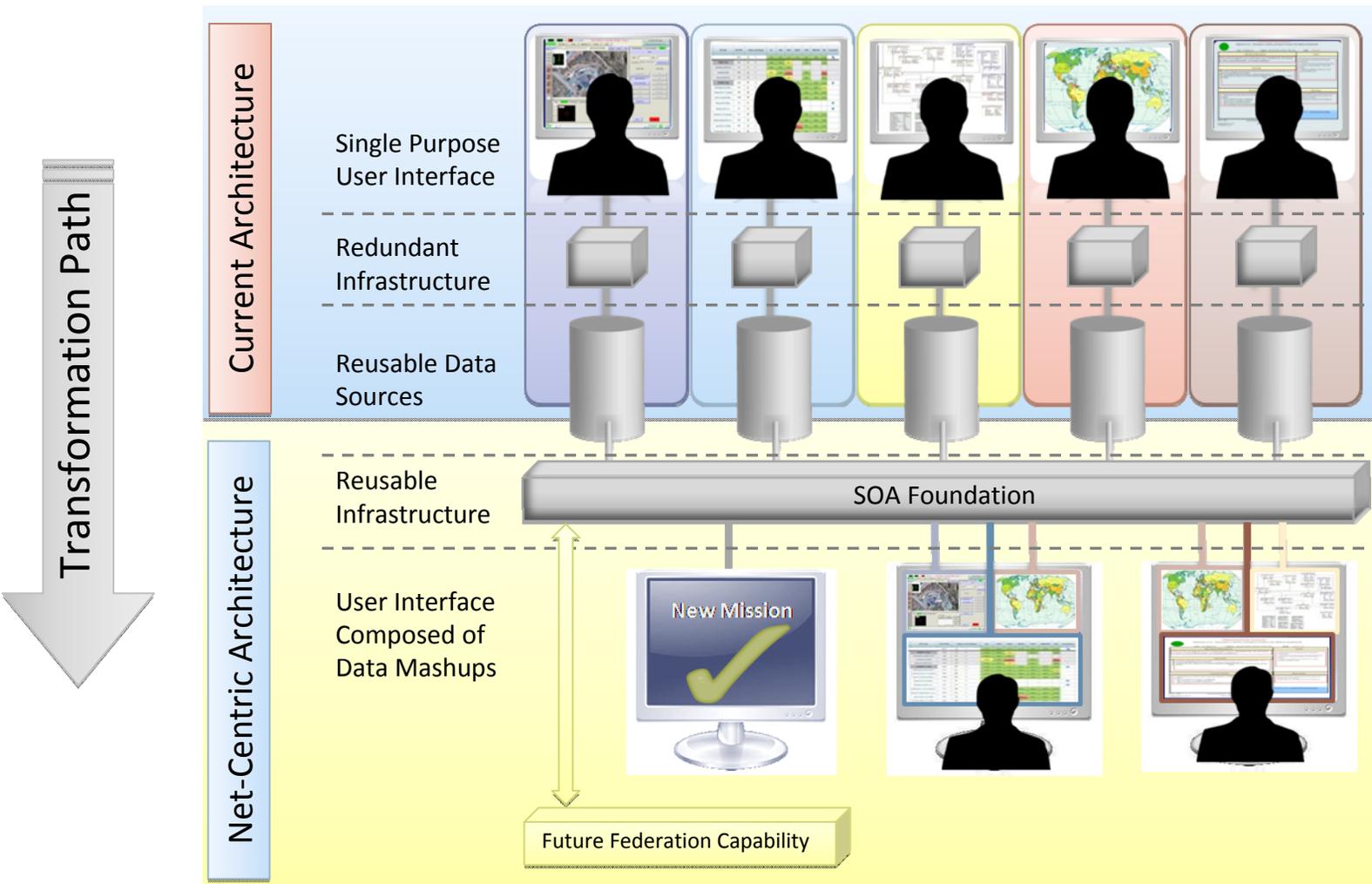
- Demonstrate warfighter utility
- Federate SOA efforts within the Army and DoD
- Provide a transformation solution for information integration

The SOAF solution utilizes and helps implement SOA standards, application programming interfaces (APIs) and governance process to:

- Ensure conformance with DoD guidance and standards
- Ensure discoverability, accessibility and security
- Provide documentation that supports Enterprise Acquisition
- Achieve maximum re-use and agility (Type Accredited Solution)

The SOAF solution provide a SOA framework to examine policy, architecture, network, and deployment issues

The SOAF solution provides the ability to address both IT challenges and Warfighter needs



The SOAF favors visionary over traditional development values

The SOAF development approach is focused on being:

focused on Warfighter Value

focused on Strategic Goals

standards based

scalable

modular

We understand traditional values but we emphasize agility, mission benefits and intrinsic interoperability which encourages organizations to forward information sharing



The SOA Foundation provides all the components essential for a scalable enterprise SOA solution

SOA Foundation

Development and Education

Service Development

Requirements and Specifications

Testing and Certification

Infrastructure

Security

Portal

ESM

Workflow

Messaging

Directory

Discovery

Governance and Operations

Data Governance

Operational Governance

Technical Governance

Warfighters invest in IT solutions to quickly answer mission critical questions

Typical Mission Questions :

What is my maintenance status?

Will I be ready for the next mission?

How many staff do I have?

Do I have the right staff mix?



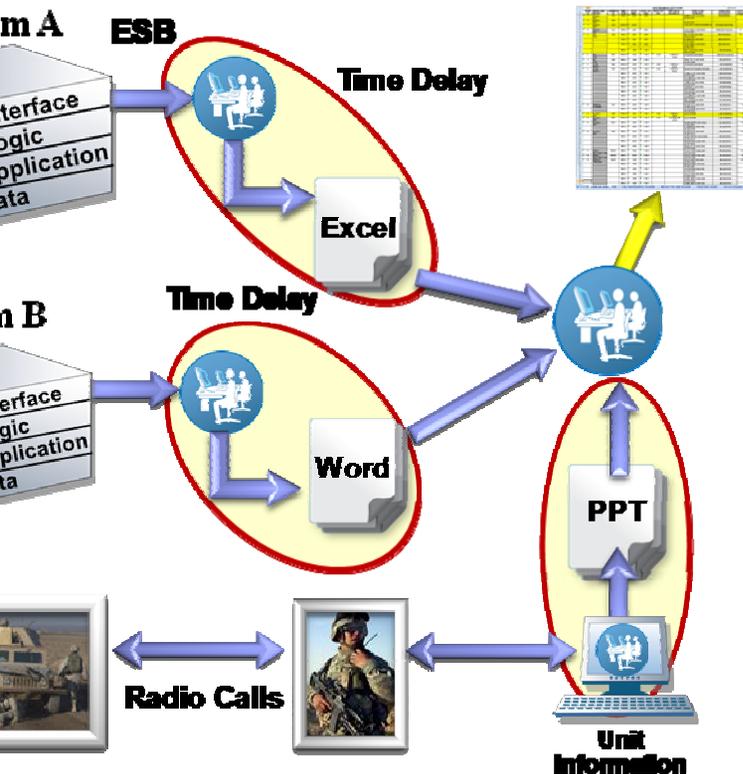
How does the SOAF solution ensure our IT solutions address these and future questions?

~ By focusing on problems between the seams ~

SOA Example #1 - SOA enabling systems shortens the time required to determine a maintenance Status

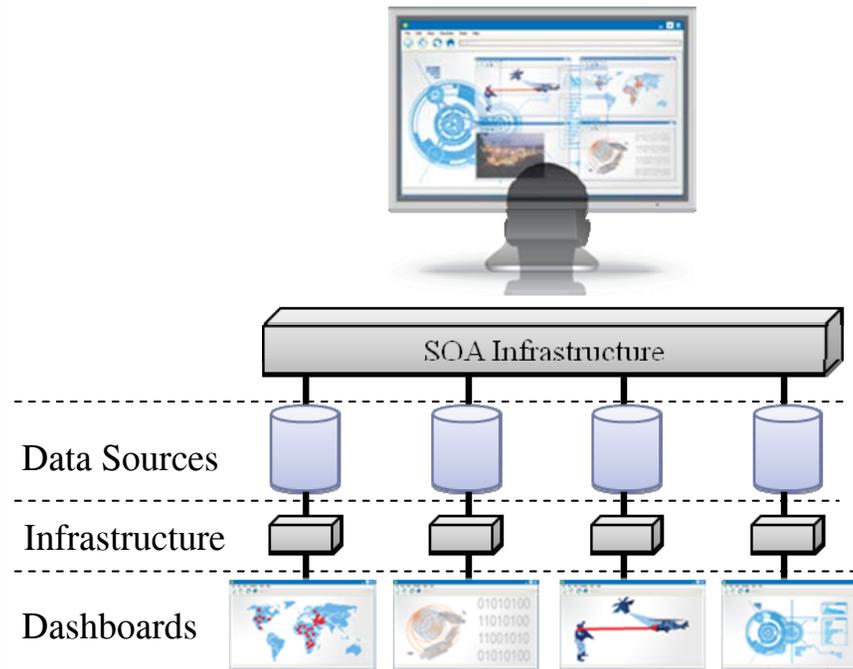
Current Process

6 Hours the answer is:
if the vehicles are up - as of yesterday.



SOA Enabled Process

After **2 Hours** the answer is:
-73% of the vehicles are up, right now;
-10% are down due to tire damage,
- mechanics are on site
-parts will arrive tomorrow.



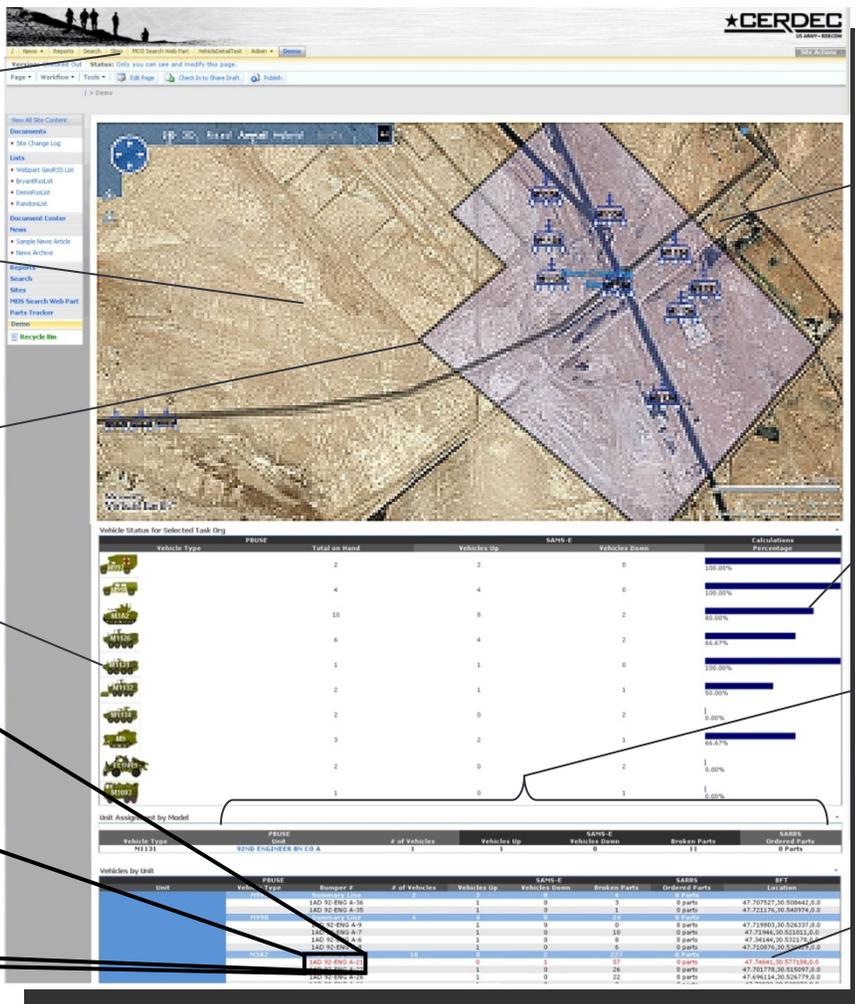
Example #1: SOA enabled integration automates data analysis significantly improving situational awareness for warfighters

Customized Views

Added Mapping Svc.

Operational Graphics Svc.

Interactive Icons



Geo-Referenced Data

Automated BI Calculations

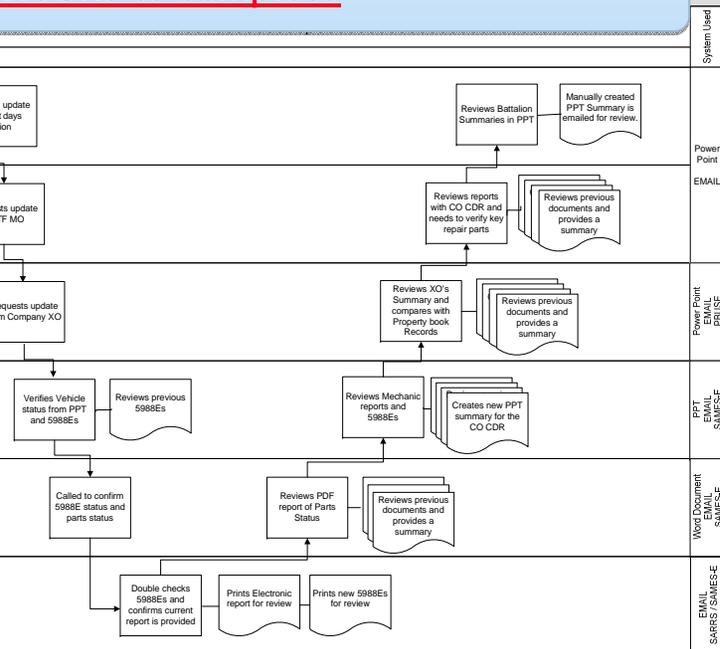
Multiple Data Svc Integration

Conditional Formatting

Example #1: The SOA enabled dashboard significantly reduces the time it takes to determine a Division's maintenance status

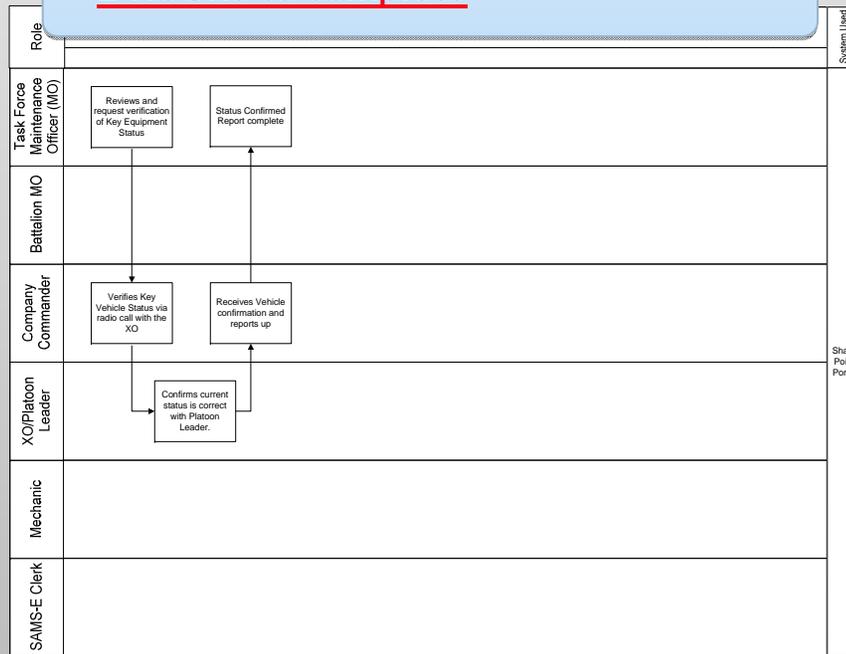
Current Process

Resources Required for a Status:
 Soldiers (over 4 Companies)
 Hand made summaries
 5 Steps
 3 Roles
 1 Data format
2 HOURS to complete



SOA Integrated Process

Resources Required for a Status:
 • 6 Soldiers (over 4 Companies)
 • 0 Hand made summaries
 • 5 Steps
 • 3 Roles
 • 1 Data format
 • 2 HOURS to complete



DA Example #2: Army Reports generated by Excel and briefed in PPT require considerable staff time

Illustrative

RMC	PROJ POP 10/08	WT POP	CUR REQ BASED ON WT POP	PROJ REQ OCT 08	CUR AUTH	ASGN	ATCH	O/H	SHORT (NEED TO BE ASGN)	SHORT NOT ON HAND	SHORT WILL NEED BY OCT 08	% FILL ASGN	%FILL O/H TO CUR POP REQ	%FILL O/H TO PROJ REQ
ERMCC	65	41	3	7	6	5		5	-1	-1	2	167%	167%	71%
ERMCC	229	233	19	23	6	20		20	-2	-2	3	105%	105%	87%
ERMCC	224	192	16	22	4	14	1	15	2	2	7	88%	94%	68%
GPRMC	361	337	28	36	30	30		30	-1	-1	6	107%	107%	83%
GPRMC	743	775	65	74	54	70		70	-9	-9	4	108%	108%	95%
GPRMC	1600	1600	112	160	90	120		120	-7	-9	40	107%	107%	75%
GPRMC	51	42	4	5	3	5		5	-1	-1	0	100%	125%	100%
GPRMC	22	20	2	2	2	2		2	0	0	0	100%	100%	100%
GPRMC	157	155	13	16	6	13		13	0	0	0	100%	100%	81%
GPRMC	350	389	27	35	24	29		29	-4	-4	6	121%	121%	83%
GPRMC	500	555	38	47	35	42		42	-5	-5	8	111%	111%	84%
GPRMC	628	712	51	62	46	54		54	-3	-3	8	108%	108%	87%
GPRMC	142	138	12	14	10	12		12	0	0	-3	142%	142%	121%
NARMC	59	53	5	6	4	5		5	1	1	1	100%	100%	83%
NARMC	694	744	62	75	56	65		65	6	6	6	102%	102%	91%
NARMC	300	356	21	26	19	22		22	8	8	8	105%	105%	73%
NARMC	549	648	46	56	41	48		48	8	8	8	102%	102%	85%
NARMC	187	206	16	20	14	16		16	3	3	3	100%	100%	84%
NARMC	57	58	6	7	5	6		6	0	0	0	100%	100%	100%
NARMC	341	393	28	35	25	30		30	4	4	4	107%	107%	88%
NARMC	71	69	6	8	6	7		7	1	1	1	100%	100%	86%
NARMC	111	132	7	9	7	8		8	3	3	3	114%	114%	73%
NARMC	667	754	55	67	49	58		58	2	2	2	118%	118%	97%
PRMC	260	269	22	27	20	23		23	1	1	1	114%	114%	96%
SERMC	349	432	28	35	25	30		30	1	1	1	107%	121%	97%
SERMC	1000	1229	61	75	54	64		64	-5	-5	29	116%	116%	71%
SERMC	499	627	36	45	33	39		39	-7	-7	7	119%	119%	86%
SERMC	90	96	7	9	7	8		8	-2	-2	0	129%	129%	100%
SERMC	24	23	2	2	1	2		2	0	0	0	100%	100%	100%
SERMC	800	962	47	59	43	51	15	53	-5	-5	27	81%	113%	66%
SERMC	24	13	1	2	1	1		1	0	0	1	100%	100%	50%
WRMC	55	59	5	6	4	5		5	-1	-1	0	120%	120%	100%
WRMC	111	101	8	11	8	10		10	-2	-2	0	138%	138%	100%
WRMC	143	151	13	16	11	13		13	0	0	2	92%	92%	86%
WRMC	83	75	6	8	5	7		7	-1	-1	1	117%	117%	88%
WRMC	831	965	64	83	61	72		72	0	0	15	106%	106%	82%
TOTAL	12377	11237	939	1237	828	1013	20	1033	-77	-83	204	108%	110%	84%

Representative Data Sample used for Briefing Leadership

<70%
70%-89%
90%

Example #2: A SOA enabled dashboard significantly reduces the time required to collect and report staffing information

The dashboard displays a 'Warrior Transition Unit' report for 'Active Report' as of Jan 15, 2009. It includes a 'Staffing Levels' legend (76-100%, 50-75%, 0-49%) and a 'Create Snapshot' button. The main data is presented in a table with columns for Region Cadre, WT Unit, WT POP, SL, PSG, NCM, SPCM, PCM, MED MD, IBH, and Comm. A callout for 'Automated BI Calculations' points to the numerical data in this table. Below this is a 'Cadre Detail - Heidelberg MEDDAC' table with columns for Heidelberg MEDDAC Unit, PROJ, WT POP, SINCE LAST WEEK, CUR REQ, Last Report, ASGN, ATCH, O/H, EXCESS, SHORT, SHORT, SHORT, % FILL, and % O/H. A callout for 'Status Comments Linked to Workflow' points to the 'COMMENTS' column in this table. At the bottom is a 'Cadre Members - Heidelberg MEDDAC - Squad Leader' table with columns for Last Name, First Name, Rank, PMOS, ASGN, ATCH, EOD, Order Start, Order End, and Comments. A callout for 'Conditional Formatting' points to the color-coded cells in this table. On the left, a callout for 'Multiple Data Feeds' points to the 'AMAP Staffing Report' and 'WT MODS Data Source' checkboxes. Another callout for 'Drill Down Capability' points to the expandable/collapsible icons in the main table. A callout for 'Near Real-Time Data Viewing' points to the 'View Previous Snap Shot' dropdown. A callout for 'Customized Reporting' points to the 'Export to...' and 'View Active Report' buttons. A callout for 'Conditional Formatting' also points to a separate window showing a detailed view of the 'Cadre Members' table with various filters and columns.

Multiple Data Feeds

Drill Down Capability

Conditional Formatting

Near Real-Time Data Viewing

Customized Reporting

Automated BI Calculations

Status Comments Linked to Workflow

Comment -- Webpage Dialog

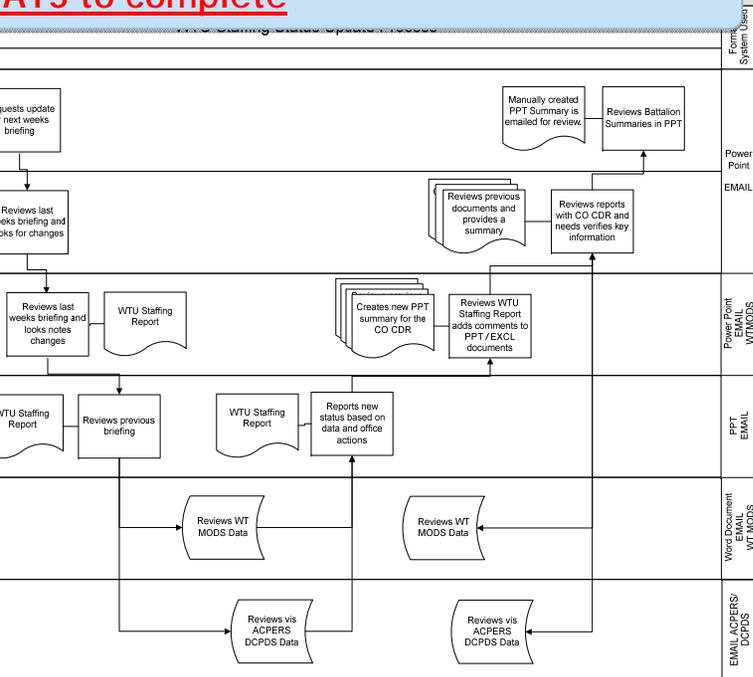
Heidelberg MEDDAC Comment
Maggie is going on training.

Save Cancel

Example #2: The SOA enabled dashboard significantly reduces the time required to collect and report Staffing information

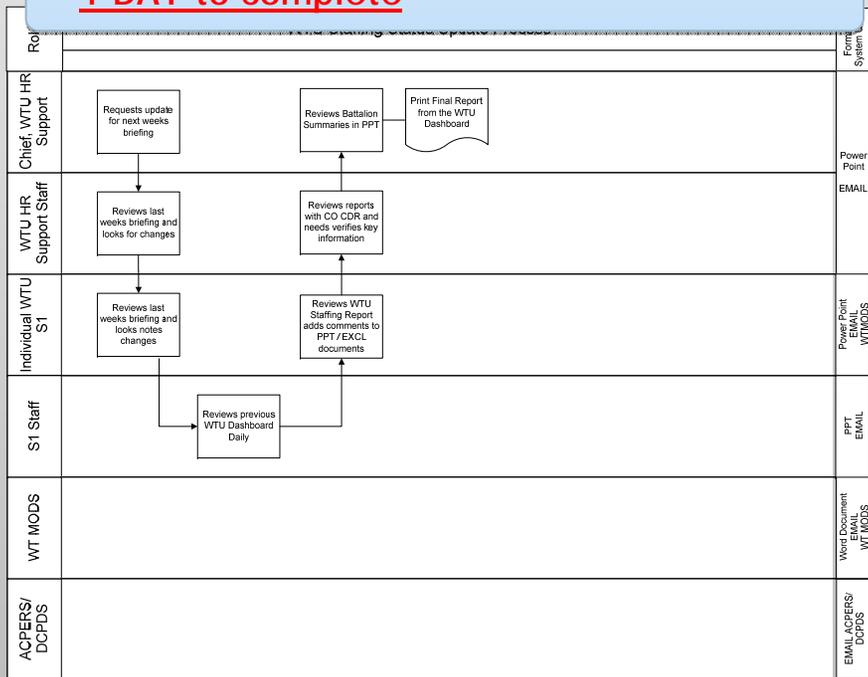
Current Process

Resources Required for a Status:
 36 Soldiers
 Hand made summaries
 8 Steps
 1 Data format
1 DAY to complete



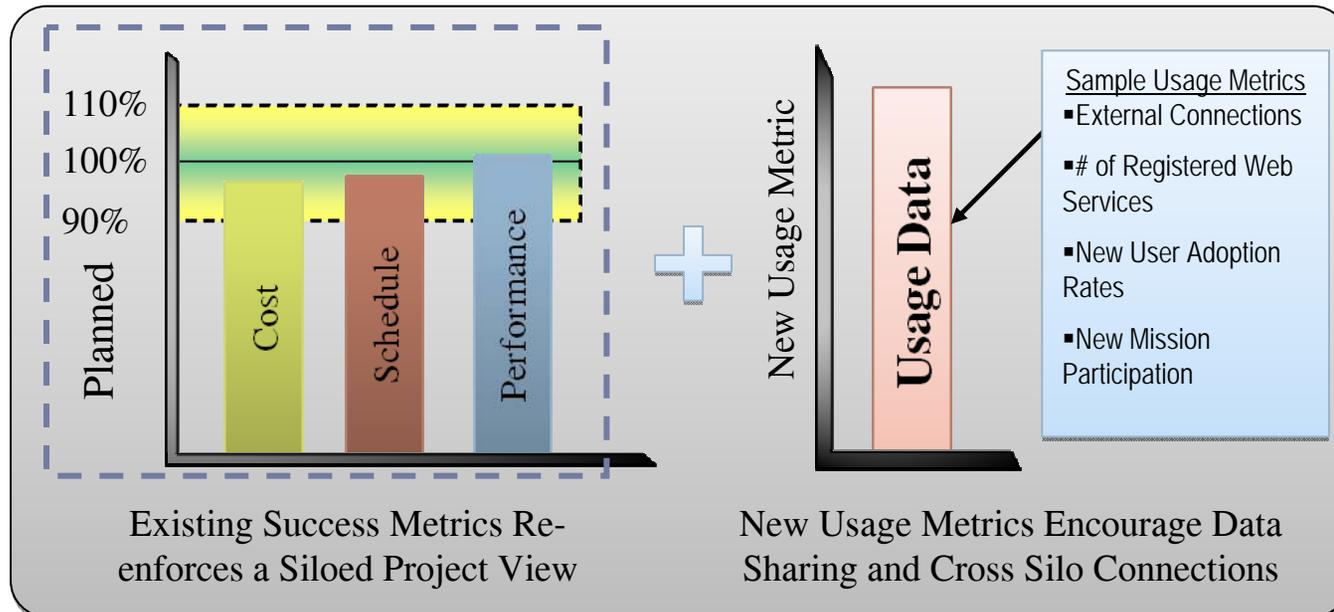
SOA Integrated Process

Resources Required for a Status:
 • 36 Soldiers
 • 0 Hand made summaries
 • 8 Steps
 • 1 Data format
1 DAY to complete



Lesson Learned – The current acquisition and PM processes do not support net-centric or SOA solutions

By changing the metrics for success from purely internal measures to include external measures of success there will be incentives to support the DoD Net-Centric Guidance and Data Sharing Initiatives.



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Backup